

CLAIMS

1. Miniaturized gas chromatograph with at least one injector (1), one separation column (2) and a detector (3) wherein the injector (1), separation column (2) and the
5 detector (3) are combined on a circuit board (4) to give a gas chromatography module (5), and the injector (1) comprises a first sheet (6) with channels (12) which is provided with a second sheet (7) with channels (13) and which may be displaced relative to the latter, whereby at least one of the sheets (6, 7) is provided with a layer (8) of plastic on the side of the sheet facing the other sheet (7, 6).
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2. Miniaturized gas chromatograph pursuant to claim 1, characterized in that the plastic is chemically inert.
3. Miniaturized gas chromatograph pursuant to claim 1 or 2, characterized in that the
15 layer (8) of plastic is applied by plasma polymerization of organic monomers.
4. Miniaturized gas chromatograph pursuant to claim 3, characterized in that the organic monomers are difluoromethane, hexafluorobutadiene and/or octafluorocyclobutane.
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5. Miniaturized gas chromatograph pursuant to one of the aforementioned claims, characterized in that the sheets (6, 7) are made of silicon.
6. Miniaturized gas chromatograph pursuant to one of the aforementioned claims,
25 characterized in that the plastic has a lower coefficient of static friction than silicon.

7. Miniaturized gas chromatograph pursuant to one of the aforementioned claims, characterized in that additionally a control and evaluation unit (9) is provided on the circuit board (4).

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8. Miniaturized gas chromatograph pursuant to one of the aforementioned claims, characterized in that the injector (1) and/or the separation column (2) and/or the detector (3) can be temperature-controlled with the help of heating elements (10).

10 9. Miniaturized gas chromatograph pursuant to claim 8, characterized in that the heating elements (10) are ceramic plates with thick film heating elements.

10 10. Miniaturized gas chromatograph pursuant to claim 8 or 9, characterized in that recesses (15, 23, 24) are provided in the circuit board (4) for the purpose of protecting the electronic control and evaluation unit (9) from the heat emitted by the heating elements (10).

15 11. Miniaturized gas chromatograph pursuant to one of the aforementioned claims, characterized in that the sheet (7) is covered by a cover sheet (11), preferably a borosilicate glass sheet.

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12. Miniaturized gas chromatograph pursuant to one of the aforementioned claims, characterized in that the first sheet (6) comprises at least three channels (12), the second sheet (7) comprises at least two supply channels (13) and two discharge channels (14).

AMENDED CLAIMS

[received by the International Office on August 16, 2004 (08/16/2004). Original claim 18 replaced by the amended claim 18 (1 page)]

5 13. Miniaturized gas chromatograph pursuant to one of the aforementioned claims, characterized in that recesses (16) are provided in the circuit board into which capillaries (18), preferably glass capillaries are countersunk for the gas flow.

10 14. Miniaturized gas chromatograph pursuant to one of the aforementioned claims, characterized in that an electromechanic drive (17) is provided that displaces the first sheet (6) relative to the second sheet (7).

15 15. Miniaturized gas chromatograph pursuant to claim 14, characterized in that the electromechanic drive (17) is a linear motor.

16. Miniaturized gas chromatograph pursuant to claim 14, characterized in that the electromechanic drive (17) is a bistable magnet system.

20 17. Miniaturized gas chromatograph pursuant to one of the aforementioned claims, characterized in that the detector (3) that preferably is a thermal conductivity detector, is provided with a gas flow sensor whose signals enable a correction of the base line.

25 18. Injector, particularly for a miniaturized gas chromatograph, characterized in that the injector (1) comprises a first sheet (6) with channels (12) which is provided with a second sheet (7) with channels (13) and which may be displaced relative to the latter, whereby at least one of the sheets (6, 7) is provided with a layer (8) of plastic on the side of the sheet facing the other sheet (6,7).

AMENDED SHEET (ARTICLE 19)

19. Injector, pursuant to claim 18, characterized in that the plastic is chemically inert.
20. Injector pursuant to claim 18 or 19, characterized in that the layer (8) of plastic is
5 applied by plasma polymerization of organic monomers.
21. Injector pursuant to claim 20, characterized in that the organic monomers are difluoromethane, hexafluorobutadiene and/or octafluorocyclobutane.
- 10 22. Injector pursuant to one of the claims 18 to 21, characterized in that the plastic has a lower coefficient of static friction than silicon.
23. Injector pursuant to one of the claims 18 to 22, characterized in that the sheet (7) is covered by a cover sheet (11), preferably a borosilicate glass sheet.
- 15 24. Injector pursuant to one of the claims 18 to 23, characterized in that an electromechanic drive (17) is provided that displaces the first sheet (6) relative to the second sheet (7).
- 20 25. Injector pursuant to claim 24, characterized in that the electromechanic drive (17) is a linear motor.
26. Injector pursuant to claim 24, characterized in that the electromechanic drive (17) is a bistable magnet system.